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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,398	01/16/2004	Kenji Hattori	5332-9PCON	7478

7590 02/14/2006  
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New York, NY 10176

EXAMINER

HON, SOW FUN

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 02/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/759,398	HATTORI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

***Withdrawn Rejections***

1. The 35 U.S.C. 112, 2<sup>nd</sup> paragraph, 102(b) and 103(a) rejections have been withdrawn due to Applicant's amendment dated 12/12/05.

***New Rejections***

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-2, 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (US 6,686,985) in view of Yamazaki (US 4,937,129).

Regarding claims 1-2, Tanaka teaches semi-transmitting mirror-possessing (reflection layer is semi-transparent, column 7, lines 5-20) substrate assembly having a glass substrate (200, column 7, lines 20-25), a foundation film (insulator film 201, column 7, lines 25-30) directly formed on said glass substrate, and a semi-transmitting reflective film (reflection layer is thinly formed so as to be semi-transparent when the pixel electrode 234 formed is used as a transreflective-type, column 7, lines 10-20). See Fig. 4 of Tanaka on the next page.

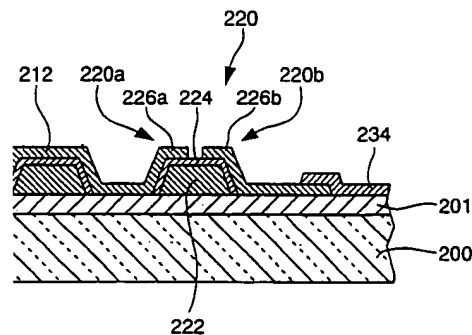


FIG. 4

Tanaka teaches that the foundation film 201 is to prevent impurities from diffusing into the metal film 222 (insulator film 201, column 7, lines 20-30). Tanaka fails to teach that the foundation film is made of silicon oxide (SiO<sub>x</sub>), or that the thickness of the foundation film is within the range of greater than 0 to 8 nm.

However, Yamazaki teaches a glass substrate suitable for liquid crystal devices (abstract), a foundation film directly formed on said glass substrate (formed on substrate 1 are an ion blocking film 2, column 2, lines 20-30), wherein the foundation film is made of silicon oxide (ion blocking film 2, column 2, lines 24-26) with a thickness of 10 nm to 15 nm (100 to 1500 angstroms, column 2, lines 24-26), and thus fails to teach that the foundation film has a thickness with the range of greater than 0 to 8 nm. However, Yamazaki then teaches a second ion blocking film 8 formed on the substrate 1, made of silicon oxide (column 2, lines 12-18) with a thickness of 5 to 25 nm (50 to 2500 angstroms, column 3, lines 22-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used silicon oxide to form the foundation film of Tanaka, and to have formed it with a thickness within the range of greater than 0 to 8

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nm, in order to block ion impurities from diffusing from the glass substrate into the metal film, as taught by Yamazaki.

Regarding claim 4, Tanaka teaches that said semi-transmitting reflective film is made of Al (aluminum reflection layer thinly formed so as to be semi-transparent, column 7, lines 10-20), which includes Al alloys.

Regarding claim 5, Tanaka teaches a liquid crystal display apparatus (column 7, lines 35-45), which has the semi-transmitting mirror-possessing substrate, and is a semi-transmitting-type according to its pixel electrode (transflective, column 7, lines 10-20).

Regarding claim 6, Tanaka teaches semi-transmitting mirror-possessing (reflection layer is semi-transparent, column 7, lines 5-20) substrate having a glass substrate (200, column 7, lines 20-25), a foundation film (insulator film 201, column 7, lines 25-30) formed on said glass substrate, and a semi-transmitting reflective film (reflection layer is thinly formed so as to be semi-transparent when the pixel electrode 234 formed is used as a transflective-type, column 7, lines 10-20), made of Al (aluminum reflection layer thinly formed so as to be semi-transparent, column 7, lines 10-20), which includes Al alloys. See Fig. 4 of Tanaka on the next page.

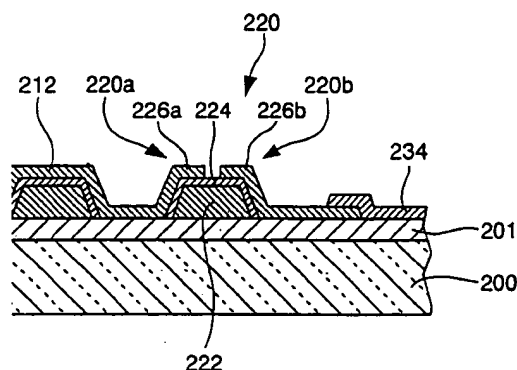


FIG. 4

Regarding claim 7, Tanaka teaches a liquid crystal display apparatus (column 7, lines 35-45), which has the semi-transmitting mirror-possessing substrate, and is a semi-transmitting-type according to its pixel electrode (transflective, column 7, lines 10-20).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Yamazaki as applied to claims 1-2, 4-7 above, and further in view of Matsuzaki (US 5,157,470).

Tanaka in view of Yamazaki, has been discussed above, and fails to teach that the silicon oxide ( $\text{SiO}_x$ ) has a chemical composition ratio  $x$  of oxygen (O) to silicon (S) in the silicon oxide ( $\text{SiO}_x$ ) in a range of 1.5 to 2.0.

However, Matsuzaki teaches a thin film of silicon oxide which, which has a thickness range of 0.5 – 10 nm (column 7, lines 50-55), which overlaps the claimed range of greater than 0 to 8nm, and prevents contamination of the aluminum electrodes (column 7, lines 45-50). Matsuzaki teaches that the composition of the silicon oxide is represented by a general formula of  $\text{SiO}_x$  which has a chemical composition ratio  $x$  of

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oxygen (O) to silicon (S) in the silicon oxide (SiOx) in a range of 1.5 to 2.0 (column 5, lines 65-67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used silicon oxide (SiOx) which has a chemical composition ratio x of oxygen (O) to silicon (S) in the silicon oxide (SiOx) in a range of 1.5 to 2.0, as the silicon oxide (SiOx) of Tanaka in view of Yamazaki, in order to prevent contamination of the electrodes, as taught by Matsuzaki.

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the


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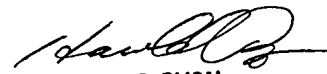
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number is (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached at (571)272-1498. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sow-Fun Hon  
02/09/06

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772 2/9/06